

WO 2005/010174 A2

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
3 February 2005 (03.02.2005)

PCT

(10) International Publication Number  
**WO 2005/010174 A2**

(51) International Patent Classification<sup>7</sup>: **C12N 9/00**

(21) International Application Number:  
**PCT/GB2004/003096**

(22) International Filing Date: 16 July 2004 (16.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0316725.1 17 July 2003 (17.07.2003) GB  
0330078.7 20 December 2003 (20.12.2003) GB

(71) Applicant (for all designated States except US): UNIVERSITY OF DUNDEE [GB/GB]; 11 Perth Road, Dundee DD1 4HN (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): HARDIE, David, Grahame [GB/GB]; 3 Beechwood Terrace East, Newport on Tay, Fife DD6 8JG (GB). ALESSI, Darlo [GB/GB]; 309 Perth Road, Dundee DD2 1LG (GB). BOUDEAU, Jerome [FR/GB]; 6 Bellfield avenue, 1st flat right, Dundee DD1 4NQ (GB).

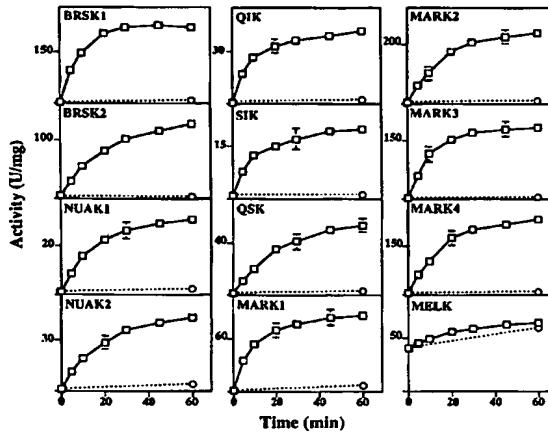
(74) Agent: PILKINGTON, Stephanie; Eric Potter Clarkson, Park View House, 58 The Ropewalk, Nottingham NG1 5DD (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GI, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

*(Continued on next page)*

(54) Title: METHODS



(57) Abstract: A method for identifying a compound for use in modulating, for example promoting, the activation or phosphorylation of AMPK (AMP-activated protein kinase) or AMPK subfamily member in a cell, the method comprising the steps of (1) determining whether a test compound modulates, for example promotes, the protein kinase activity of LKB1 and (2) selecting a compound which modulates, for example promotes, the protein kinase activity of LKB1. The protein kinase activity may be tested using AMPK or an AMPK subfamily member, or a peptide encompassing the T-loop region of AMPK or an AMPK subfamily member. The LKB1 may be in a preparation or complex with STRAD and/or M025, which has much greater kinase activity than LKB1 in the absence of these accessory proteins. The LKB1, STRAD or M025 may be recombinant. The AMPK subfamily member may be AMPK $\alpha$ 1, AMPK $\alpha$ 2, NUAK1, NUAK2, BRSK1, BRSK2, SIK, QIK, QSK, MARK1, MARK2, MARK3, MARK4 or MELK.



**Published:**

- without international search report and to be republished upon receipt of that report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*